

Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition	Error Err
1	BRS	L1	340067 protein\$6	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:14			0
2	BRS	L2	112049 isolat\$3 or purif\$7	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:15			0
3	BRS	L3	99749 1 same 2	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:15			0
4	BRS	L4	46588 magnetic same solid	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:16			0
5	BRS	L5	305 3 same 4	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:16			0
6	BRS	L6	55614 hydrophobic same hydrophilic	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:17			0
7	BRS	L7	93333 hydroxyl same (alkyl or aryl)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:17			0
8	BRS	L8	43 4 same ( 6 or 7 )	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:19			0
9	BRS	L9	1 3 same 8	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:18			0
10	BRS	L10	3 8 same 2	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:22			0
11	BRS	L11	6 8 same 1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:27			0

Type	L #	Hits	Search Text	DBs	Time Stamp	Comm ents	Error Definit ion	Err ors
12	BRS	L12	24557 magnetic adj particle	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:51		0	
13	BRS	L13	132 12 same (6 or 7)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:28		0	
14	BRS	L14	14 13 same 3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:50		0	
15	BRS	L15	128088 6 automati\$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:50		0	
16	BRS	L16	6366 magnetic adj separation	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:51		0	
17	BRS	L17	5 16 same (6 or 7)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:52		0	
18	BRS	L18	0 17 same 3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:52		0	
19	BRS	L19	159 (10 or 11 or 16) same 15	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:53		0	
20	BRS	L20	0 (10 or 11 or 17) same 15	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:54		0	
21	BRS	L21	25692 mass adj spectrometry	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:53		0	
22	BRS	L22	1 (10 or 11 or 17) same 21	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:54		0	

Type	L#	Hits	Search Text	DBs	Time Stamp	Comm ents	Error Definit ion	Error Err ors
23	BRS	L23	3 rauth adj holger.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:55		0	
24	BRS	L24	8 reinhardt adj richard.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:55		0	
25	BRS	L25	6 nordhoff adj eckhard.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:55		0	
26	BRS	L26	11 kalkum adj markus.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:56		0	
27	BRS	L27	1 ( 23 or 24 or 25 or 26) and 3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/09/07 13:56		0	

=> file medline caplus biosis emb scisearch agricola

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

0.21

SESSION

0.21

FULL ESTIMATED COST

FILE 'MEDLINE' ENTERED AT 14:00:52 ON 07 SEP 2003

FILE 'CAPLUS' ENTERED AT 14:00:52 ON 07 SEP 2003

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FILE 'EMBASE' ENTERED AT 14:00:52 ON 07 SEP 2003

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FILE 'SCISEARCH' ENTERED AT 14:00:52 ON 07 SEP 2003

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FILE 'AGRICOLA' ENTERED AT 14:00:52 ON 07 SEP 2003

=> s protein?

4 FILES SEARCHED...

L1 7603565 PROTEIN?

=> s isolat? or purif?

L2 5192160 ISOLAT? OR PURIF?

=> s l1 (p) l2

L3 1186670 L1 (P) L2

=> s Magnetic (p) (solid or particle or separat?)

L4 178305 MAGNETIC (P) (SOLID OR PARTICLE OR SEPARAT?)

=> s (hydrophilic or hydroxyl) (p) (hydrophobic or alkyl or aryl)

L5 60340 (HYDROPHILIC OR HYDROXYL) (P) (HYDROPHOBIC OR ALKYL OR ARYL)

=> s 14 (p) 15

L6 162 L4 (P) L5

=> s 13 (p) 16

L7 1 L3 (P) L6

=> d 17 1 ibib abs

L7 ANSWER 1 OF 1 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN  
ACCESSION NUMBER: 1987:386321 BIOSIS

DOCUMENT NUMBER: BA84:72818

TITLE: BACKBONE DYNAMICS OF A MODEL MEMBRANE PROTEIN ASSIGNMENT OF  
THE CARBONYL CARBON CARBON-13 NMR RESONANCES IN  
DETERGENT-SOLUBILIZED M13 COAT PROTEIN.

AUTHOR(S): HENRY G D; WEINER J H; SYKES B D

CORPORATE SOURCE: MED. RES. COUNCIL GROUP IN PROTEIN STRUCTURE AND FUNCTION,  
UNIV. ALBERTA, EDMONTON, ALBERTA, T6G 2H7.

SOURCE: BIOCHEMISTRY, (1987) 26 (12), 3619-3626.  
CODEN: BICHAW. ISSN: 0006-2960.

FILE SEGMENT: BA; OLD

LANGUAGE: English

AB The major coat \*\*\*protein\*\*\* of the filamentous bacteriophage M13 is a 50-residue amphiphilic polypeptide which is inserted, as an integral membrane-spanning \*\*\*protein\*\*\*, in the inner membrane of the Escherichia coli host during infection. <sup>13</sup>C was incorporated biosynthetically into a total of 23 of the peptide carbonyls using labeled amino acids (alanine, glycine, lysine, phenylalanine, and proline). The structure and dynamics of carbonyl-labeled M13 coat \*\*\*protein\*\*\* were monitored by <sup>13</sup>C nuclear \*\*\*magnetic\*\*\* resonance (NMR) spectroscopy. Assignment of many resonances was achieved by using protease digestion, pH titration, or labeling of the peptide bond with both <sup>13</sup>C and <sup>15</sup>N. The carbonyl region of the natural-abundance <sup>13</sup>C NMR spectrum of M13 coat \*\*\*protein\*\*\* in sodium dodecyl sulfate solution shows approximately eight backbone carbonyl resonances with line widths much narrower than the rest. Three of these more mobile residues correspond to assigned peaks (glycine-3, lysine-48, and alanine-49) in the individual amino acid spectra, and another almost certainly arises from glutamic acid-2. A ninth

residue, alanine-1, also gives rise to a very narrow carbonyl resonance if the pH is well above or below the pKa of the terminal amino group. These data suggest that only about four residues at either end of the \*\*\*protein\*\*\* experience large-amplitude spatial fluctuations; the rest of the molecule is essentially rigid on the time scale of the overall rotational tumbling of the \*\*\*protein\*\*\*-detergent complex. The relative exposure of different regions of detergent-bound \*\*\*protein\*\*\* was monitored by limited digestion with \*\*\*proteinase\*\*\* K. The N-terminal \*\*\*hydrophilic\*\*\* region was very readily removed by the enzyme, and a stable core \*\*\*particle\*\*\* was \*\*\*isolated\*\*\* which contained the \*\*\*hydrophobic\*\*\* region and most of the C-terminal segment. Comparable spectra and digestion patterns were obtained when the \*\*\*protein\*\*\* was solubilized in sodium deoxycholate, suggesting that the coat \*\*\*protein\*\*\* binds both amphiphiles in a similar fashion.

=> d his

(FILE 'HOME' ENTERED AT 14:00:28 ON 07 SEP 2003)

FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH, AGRICOLA' ENTERED AT 14:00:52 ON 07 SEP 2003

L1 7603565 S PROTEIN?  
L2 5192160 S ISOLAT? OR PURIF?  
L3 1186670 S L1 (P) L2  
L4 178305 S MAGNETIC (P) (SOLID OR PARTICLE OR SEPARAT?)  
L5 60340 S (HYDROPHILIC OR HYDROXYL) (P) (HYDROPHOBIC OR ALKYL OR ARYL)  
L6 162 S L4 (P) L5  
L7 1 S L3 (P) L6

=> s magnetic particle  
L8 11161 MAGNETIC PARTICLE

=> s magnetic separation  
L9 9870 MAGNETIC SEPARATION

=> s (18 or 19) (p) 12  
L10 1623 (L8 OR L9) (P) L2

=> s 110 (p) 15  
L11 2 L10 (P) L5

=> duplicate remove 111  
DUPLICATE PREFERENCE IS 'CAPLUS, SCISEARCH'  
KEEP DUPLICATES FROM MORE THAN ONE FILE? Y/(N):n  
PROCESSING COMPLETED FOR L11  
L12 1 DUPLICATE REMOVE L11 (1 DUPLICATE REMOVED)

=> s 112 not 17  
L13 1 L12 NOT L7

=> d 113 1 ibib abs

L13 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 2002:620703 CAPLUS  
DOCUMENT NUMBER: 137:283810  
TITLE: Water-Based Magnetic Fluids as Extractants for Synthetic Organic Compounds  
AUTHOR(S): Moeser, Geoffrey D.; Roach, Kaitlin A.; Green, William H.; Laibinis, Paul E.; Hatton, T. Alan  
CORPORATE SOURCE: Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA  
SOURCE: Industrial & Engineering Chemistry Research (2002), 41(19), 4739-4749  
CODEN: IECRED; ISSN: 0888-5885  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB A class of water-based magnetic fluids specifically tailored to ext. sol. org. compds. from water is discussed. These magnetic fluids, prepd. by pptn., consist of a suspension of .apprx.7.5 nm magnetite (Fe3O4) nanoparticles coated with a .apprx.9 nm bifunctional polymer layer comprised of an outer \*\*\*hydrophilic\*\*\* poly(ethylene oxide) (PEO) region for colloidal stability and an inner \*\*\*hydrophobic\*\*\* poly(propylene oxide) (PPO) region for org. compd. solubilization. Particles exhibited a high capacity for org. solutes, with partition coeffs. between the polymer coating and water on the order of 103-105,

consistent with values reported for solubilization of these orgs. in PEO-PPO-PEO block copolymerelles. In bench-scale expts., high-gradient \*\*\*magnetic\*\*\* \*\*\*sepn\*\*\* . (HGMS) could recover nanoparticles at 98% efficiency. Process options for particle regeneration in water \*\*\*purifn\*\*\* . applications are discussed.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d his

(FILE 'HOME' ENTERED AT 14:00:28 ON 07 SEP 2003)

FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH, AGRICOLA' ENTERED AT 14:00:52 ON 07 SEP 2003

L1 7603565 S PROTEIN?  
L2 5192160 S ISOLAT? OR PURIF?  
L3 1186670 S L1 (P) L2  
L4 178305 S MAGNETIC (P) (SOLID OR PARTICLE OR SEPARAT?)  
L5 60340 S (HYDROPHILIC OR HYDROXYL) (P) (HYDROPHOBIC OR ALKYL OR ARYL)  
L6 162 S L4 (P) L5  
L7 1 S L3 (P) L6  
L8 11161 S MAGNETIC PARTICLE  
L9 9870 S MAGNETIC SEPARATION  
L10 1623 S (L8 OR L9) (P) L2  
L11 2 S L10 (P) L5  
L12 1 DUPLICATE REMOVE L11 (1 DUPLICATE REMOVED)  
L13 1 S L12 NOT L7

=> s 16 (p) surface  
L14 58 L6 (P) SURFACE

=> s 114 (p) 13  
L15 0 L14 (P) L3

=> s agarose  
L16 103737 AGAROSE

=> s 116 (p) 14  
L17 188 L16 (P) L4

=> s 117 (p) 13  
L18 28 L17 (P) L3

=> duplicate remove 118  
DUPLICATE PREFERENCE IS 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH'  
KEEP DUPLICATES FROM MORE THAN ONE FILE? Y/(N):n  
PROCESSING COMPLETED FOR L18  
L19 13 DUPLICATE REMOVE L18 (15 DUPLICATES REMOVED)

=> d 119 1-13 ibib abs

L19 ANSWER 1 OF 13 MEDLINE on STN DUPLICATE 1  
ACCESSION NUMBER: 2003372630 IN-PROCESS  
DOCUMENT NUMBER: 22788903 PubMed ID: 12906907  
TITLE: Novel purification system for 6xHis-tagged proteins by magnetic affinity separation:  
AUTHOR: Frenzel Andre; Bergemann Christian; Kohl Gabi; Reinard Thomas  
CORPORATE SOURCE: Lehrgebiet Molekulargenetik, Universitat Hannover, Herrenhauser Strasse 2, D-30419 Hannover, Germany.  
SOURCE: J Chromatogr B Analyt Technol Biomed Life Sci, (2003 Aug 15) 793 (2) 325-9.  
Journal code: 101139554. ISSN: 1570-0232.  
PUB. COUNTRY: United States  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
LANGUAGE: English  
FILE SEGMENT: IN-PROCESS; NONINDEXED; Priority Journals  
ENTRY DATE: Entered STN: 20030809  
Last Updated on STN: 20030905

AB We have developed a novel nickel-silica matrix for the generation of \*\*\*magnetic\*\*\* beads for metal-ion affinity chromatography. In contrast to \*\*\*magnetic\*\*\* Ni-NTA \*\*\*agarose\*\*\* beads, the novel \*\*\*particle\*\*\* type (SiMAC) consists of a \*\*\*magnetic\*\*\* core and a nickel-silica composite matrix with the nickel ions tightly integrated in the silica. This results in a much higher number of chelating groups compared with Ni-NTA \*\*\*agarose\*\*\* beads. With the SiMAC beads,

greatly improved \*\*\*purification\*\*\* of histidine-tagged \*\*\*proteins\*\*\* from crude bacterial extracts was achieved. The yield was at least twice as high as with conventional materials, the method is faster, since the coupling step is omitted and there is no need for handling toxic Ni(2+) salts.

L19 ANSWER 2 OF 13 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 2002:258168 CAPLUS  
DOCUMENT NUMBER: 138:21449  
TITLE: A purification system for his-tag proteins using magnetic separator  
AUTHOR(S): Nishiya, Yoshiaki; Kitabayashi, Masao; Ikeda, Katsunori  
CORPORATE SOURCE: Tsuruga Institute of Biotechnology, Toyobo Co., Ltd., Japan  
SOURCE: Jikken Igaku (2002), 20(3), 479-482  
CODEN: JIIGEF; ISSN: 0288-5514  
PUBLISHER: Yodosha  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: Japanese  
AB A review on automatic protein purifn. of recombinant His-tag proteins using magnetic nickel agarose bead in 96-well plates. Also given were the principle of the magnetic nickel agarose protein isolation, and isolation of Histidine hexamer-tag sarcosine oxidase manufd. with recombinant E. coli.

L19 ANSWER 3 OF 13 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN  
ACCESSION NUMBER: 2002:585377 BIOSIS  
DOCUMENT NUMBER: PREV200200585377  
TITLE: Study of protein interactions using functionalized affinity membranes: A new approach for proteomics research.  
AUTHOR(S): Springer, A. L. (1); Gall, A. S. (1); Hughes, K. A. (1); Kaiser, R. J. (1); Li, G. (1); Lund, K. P. (1)  
CORPORATE SOURCE: (1) Prolinx, Inc, Bothell, WA USA  
SOURCE: Abstracts of the General Meeting of the American Society for Microbiology, (2002) Vol. 102, pp. 159.  
<http://www.asmusa.org/mtgsrc/generalmeeting.htm>. print.  
Meeting Info.: 102nd General Meeting of the American Society for Microbiology Salt Lake City, UT, USA May 19-23, 2002 American Society for Microbiology  
. ISSN: 1060-2011.  
DOCUMENT TYPE: Conference  
LANGUAGE: English  
AB Elucidating mechanisms of bacterial virulence requires understanding interactions of bacterial \*\*\*proteins\*\*\* with host \*\*\*proteins\*\*\* and with signaling molecules. To study such interactions using a systems approach, techniques are needed that are reliable, universal for any \*\*\*protein\*\*\*, and are amenable to automation. Prolinx(R), Inc. has developed a novel chemical affinity system for specific immobilization of \*\*\*proteins\*\*\* and other macromolecules. The system is based on the specific interaction of two small synthetic molecules, phenyl(di)boronic acid (P(D)BA) and salicylhydroxamic acid (SHA). The use of this technology to reproducibly immobilize biomolecules on a number of \*\*\*solid\*\*\* supports (such as microtiter plates, \*\*\*agarose\*\*\* or \*\*\*magnetic\*\*\* \*\*\*particles\*\*\* ) has been demonstrated. In this study, the versatility of this technology on functionalized membranes is presented. E. coli beta-galactosidase was used as a model system to demonstrate feasibility of using SHA membranes as a surface for immobilization, \*\*\*solid\*\*\* phase assays and controlled release of macromolecules. Conjugation of active \*\*\*protein\*\*\* with PDBA was performed in solution independent of the immobilization step on the SHA membranes. The resulting PDBA-beta-galactosidase conjugate was immobilized directly without \*\*\*purification\*\*\*. SHA-membranes show high capacity for \*\*\*protein\*\*\* conjugation and enable excellent assay sensitivities. They are convenient to handle and store and can be used in multiple formats including those compatible with high-throughput analyses. The features demonstrated using this system make SHA-membranes a convenient platform for proteomics research.

L19 ANSWER 4 OF 13 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 1999:194649 CAPLUS  
DOCUMENT NUMBER: 131:57471  
TITLE: Purification of recombinant human interferon-.alpha. by magnetic affinity microsphere  
AUTHOR(S): Guo, Li'an; Zhu, Baoquan; Chen, Daijie  
CORPORATE SOURCE: The Central Laboratory, Fourth Military Medical University, Xi'an, 710033, Peop. Rep. China

SOURCE: Disi Junyi Daxue Xuebao (1999), 20(1), 85-88  
PUBLISHER: Disi Junyi Daxue Xuebao Bianjibu  
DOCUMENT TYPE: Journal  
LANGUAGE: Chinese  
AB A new method for \*\*\*sepg\*\*\* . recombinant human interferon-.alpha. by \*\*\*magnetic\*\*\* affinity microsphere (MAMS) was provided. The \*\*\*magnetic\*\*\* powders were embedded in \*\*\*agarose\*\*\* to form the \*\*\*magnetic\*\*\* \*\*\*agarose\*\*\* microsphere (MS). Monoclonal antibody (McAb) was linked up matrix by CNBr methods. The coupled rate and capacity of ligand to link up matrix was affected by quantities of CNBr and McAb. The couple capacity and rate of McAb on the surface of MS was 15.1 g L-1 MS and 75.3%, when CNBr 200 g L-1 MS and McAb 20 g L-1 MS were added. The purity of rhIFN-.alpha. \*\*\*purified\*\*\* by one-step MAMS was recognized as 88% by SDS-PAGE with Coomassie Blue. The activity recovery was 70%. The MS synthesized was a good matrix to link up large mol. \*\*\*proteins\*\*\* and could be used to \*\*\*purify\*\*\* \*\*\*proteins\*\*\* . The MAMS was a more simple and rapid method for \*\*\*isolating\*\*\* highly \*\*\*purified\*\*\* \*\*\*proteins\*\*\* from suspension than classical affinity chromatog.

L19 ANSWER 5 OF 13 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1999:760838 CAPLUS  
DOCUMENT NUMBER: 132:206648  
TITLE: Synthesis of immunomagnetic microsphere and its use for separation of recombinant human interleukin-2  
AUTHOR(S): Guo, Li'an; Chen, Wanlu; Zhu, Baoquan; Chen, Daijie  
CORPORATE SOURCE: Central Laboratory, the Fourth Military Medical University, Xi'an, 710032, Peop. Rep. China  
SOURCE: Xibao Yu Fenzi Mianyixue Zazhi (1999), 15(1), 47-50  
CODEN: XFMZFM; ISSN: 1007-8738

PUBLISHER: Disi Junyi Daxue  
DOCUMENT TYPE: Journal  
LANGUAGE: Chinese

AB The synthesis of immunomagnetic microsphere (IMMS) of monoclonal antibodies (mAb) to recombinant human interleukin-2 (rhIL-2) as ligand bound to Fe3O4- \*\*\*agarose\*\*\* \*\*\*magnetic\*\*\* microsphere (MMS) and \*\*\*sepn\*\*\* . for rhIL-2 from suspension of inclusion body were attempted. The \*\*\*magnetic\*\*\* microsphere was prep. by phys. wrapper encapsulation. After reaction, the \*\*\*magnetic\*\*\* powers were enveloped in the middle of \*\*\*agarose\*\*\* . The \*\*\*magnetic\*\*\* microsphere was coupled with anti-rhIL-2 mAbs to form immunomagnetic microsphere. The coupling of mAb with MMS was by CNBr methods. The IMMS was used to \*\*\*sep\*\*\* . rhIL-2 from a suspension of inclusion bodies. The purity of rhIL-2 \*\*\*purified\*\*\* by this one step IMMS method reached 93%, specific activity 2.0 .times. 106 IU/mg \*\*\*protein\*\*\* , and ratio of activity 80%. This method can \*\*\*sep\*\*\* . \*\*\*protein\*\*\* from suspension, and is simple and fast.

L19 ANSWER 6 OF 13 MEDLINE on STN DUPLICATE 2

ACCESSION NUMBER: 1998188532 MEDLINE  
DOCUMENT NUMBER: 98188532 PubMed ID: 9528099  
TITLE: Preparation of magnetic immobilized metal affinity separation media and its use in the isolation of proteins.  
AUTHOR: Abudiab T; Beitle R R Jr  
CORPORATE SOURCE: Department of Chemical Engineering, University of Arkansas, Fayetteville 72701, USA.  
SOURCE: JOURNAL OF CHROMATOGRAPHY. A, (1998 Feb 6) 795 (2) 211-7.  
Journal code: 9318488.

PUB. COUNTRY: Netherlands  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 199804  
ENTRY DATE: Entered STN: 19980430  
Last Updated on STN: 19980430  
Entered Medline: 19980423

AB A new method of pseudobiospecific \*\*\*protein\*\*\* \*\*\*isolation\*\*\* is developed and tested, which employs both metal affinity and magnetism as the basis for \*\*\*isolation\*\*\* . The chelating group iminodiacetic acid (IDA) has been coupled to the surface of \*\*\*magnetic\*\*\* \*\*\*agarose\*\*\* , and when charged with metal ions (Cu<sup>2+</sup> or Zn<sup>2+</sup>) is capable of binding model \*\*\*proteins\*\*\* which display metal affinity, and of \*\*\*separating\*\*\* \*\*\*protein\*\*\* mixtures. \*\*\*Magnetic\*\*\* properties of the medium facilitated the batch recovery of the adsorbent, as losses are minimized by concentrating and retaining the \*\*\*separation\*\*\* medium with the aid of a magnet. Model

\*\*\*proteins\*\*\* were used to characterize \*\*\*protein\*\*\* adsorption, capacity, and stability of \*\*\*magnetic\*\*\* \*\*\*agarose\*\*\*. Recovery from a cell lysate was demonstrated by \*\*\*protein\*\*\* \*\*\*isolation\*\*\* from extracts of *E. coli* containing a target \*\*\*protein\*\*\*. Overall, this study effectively illustrates the engineering of \*\*\*separation\*\*\* media which combine several desired properties for the development of a new branch of metal affinity-based bioseparation.

L19 ANSWER 7 OF 13 SCISEARCH COPYRIGHT 2003 THOMSON ISI ON STN  
ACCESSION NUMBER: 1998:178461 SCISEARCH

THE GENUINE ARTICLE: YY298

TITLE: Preparation of magnetic immobilized metal affinity separation media and its use in the isolation of proteins  
AUTHOR: Abudiaab T; Beitle R R (Reprint)  
CORPORATE SOURCE: UNIV ARKANSAS, DEPT CHEM ENGN, BELL ENGN CTR 3202, FAYETTEVILLE, AR 72701 (Reprint); UNIV ARKANSAS, DEPT CHEM ENGN, BELL ENGN CTR 3202, FAYETTEVILLE, AR 72701

COUNTRY OF AUTHOR: USA

SOURCE: JOURNAL OF CHROMATOGRAPHY A, (6 FEB 1998) Vol. 795, No. 2, pp. 211-217.

Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.

ISSN: 0021-9673.

DOCUMENT TYPE: Article; Journal

FILE SEGMENT: PHYS; LIFE

LANGUAGE: English

REFERENCE COUNT: 48

\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\*

AB A new method of pseudobiospecific \*\*\*protein\*\*\* \*\*\*isolation\*\*\* is developed and tested, which employs both metal affinity and magnetism as the basis for \*\*\*isolation\*\*\*. The chelating group iminodiacetic acid (IDA) has been coupled to the surface of \*\*\*magnetic\*\*\* \*\*\*agarose\*\*\*, and when charged with metal ions (Cu<sup>2+</sup> or Zn<sup>2+</sup>) is capable of binding model \*\*\*proteins\*\*\* which display metal affinity, and of \*\*\*separating\*\*\* \*\*\*protein\*\*\* mixtures. \*\*\*Magnetic\*\*\* properties of the medium facilitated the batch recovery of the adsorbent, as losses are minimized by concentrating and retaining the \*\*\*separation\*\*\* medium with the aid of a magnet. Model \*\*\*proteins\*\*\* were used to characterize \*\*\*protein\*\*\* adsorption, capacity, and stability of IDA \*\*\*magnetic\*\*\* \*\*\*agarose\*\*\*. Recovery from a cell lysate was demonstrated by \*\*\*protein\*\*\* \*\*\*isolation\*\*\* from extracts of *E. coli* containing a target \*\*\*protein\*\*\*. Overall, this study effectively illustrates the engineering of \*\*\*separation\*\*\* media which combine several desired properties for the development of a new branch of metal affinity-based bioseparation. (C) 1998 Elsevier Science B.V.

L19 ANSWER 8 OF 13 MEDLINE ON STN DUPLICATE 3

ACCESSION NUMBER: 1998288750 MEDLINE

DOCUMENT NUMBER: 98288750 PubMed ID: 9627061

TITLE: Efficient purification of mouse anti-FGF receptor IgM monoclonal antibody by magnetic beads.

AUTHOR: Quitadamo I J; Schelling M E

CORPORATE SOURCE: Department of Genetics and Cell Biology, Washington State University, Pullman 99164-4234, USA.

SOURCE: HYBRIDOMA, (1998 Apr) 17 (2) 199-207.

Journal code: 8202424. ISSN: 0272-457X.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 199808

ENTRY DATE: Entered STN: 19980828

Last Updated on STN: 19980828

Entered Medline: 19980817

AB Affinity chromatography has been widely used for the \*\*\*purification\*\*\* of monoclonal antibodies (MAb). Traditionally, activated \*\*\*agarose\*\*\* beads conjugated with specific antisera have been used as a \*\*\*solid\*\*\* support in chromatographic \*\*\*protein\*\*\* \*\*\*purification\*\*\*. \*\*\*Magnetic\*\*\* beads conjugated with various antibodies have recently become an alternative method for the \*\*\*isolation\*\*\* of diverse \*\*\*proteins\*\*\*, nucleic acids, and cell types. In this study, murine anti-fibroblast growth factor receptor 1 (FGFR1) immunoglobulin M (IgM) was \*\*\*isolated\*\*\* from \*\*\*protein\*\*\* solutions to compare immunoaffinity column chromatography and \*\*\*magnetic\*\*\* bead IgM \*\*\*purification\*\*\* methods. Using immobilized rat anti-mouse IgM MAb,

an UltraLink 1-ethyl-3-(3-dimethylaminopropyl)carboimide (EDC)/diaminodipropylamine (DPA) immunoaffinity column and polystyrene-coated \*\*\*magnetic\*\*\* beads were used for the \*\*\*purification\*\*\* of mouse IgM from bovine serum albumin/phosphate-buffered saline (BSA/PBS) as well as from crude ascites. \*\*\*Protein\*\*\* quantitation and percent IgM yield were determined by reducing SDS-PAGE electrophoresis followed by silver staining, then IgM and \*\*\*protein\*\*\* contaminants were quantitated using densitometry analysis. IgM anti-FGFR1 binding specificity and immunologic activity were determined by enzyme-linked immunosorbent assay (ELISA). This study demonstrates that \*\*\*magnetic\*\*\* bead \*\*\*isolation\*\*\* of IgM from ascites is more effective than traditional affinity chromatography \*\*\*purification\*\*\* as determined by greater IgM yield, purity, and immunologic activity.

L19 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1995:240209 CAPLUS

DOCUMENT NUMBER: 122:50386

TITLE: Preparation and evaluation of magnetic metal chelating affinity supports

AUTHOR(S): O'Brien, S. M.; Thomas, O. R. T.; Dunnill, P.

CORPORATE SOURCE: Advanced Cent. Biochem. Eng., Univ. Coll. London, London, WC1E 7JE, UK

SOURCE: IChemE Res. Event, Two-Day Symp. (1994), Volume 1, 159-61. Inst. Chem. Eng.: Rugby, UK.

CODEN: 60NQAL

DOCUMENT TYPE: Conference

LANGUAGE: English

AB The employment of affinity \*\*\*sepn\*\*\* . early on in the downstream \*\*\*purifn\*\*\* . process should reduce the overall no. of steps required and increase efficiency and yield. Superparaferromagnetic immobilized metal affinity supports have demonstrated selective \*\*\*protein\*\*\* \*\*\*sepn\*\*\* . through binding surface accessible histidines residues on \*\*\*proteins\*\*\* . \*\*\*Magnetic\*\*\* supports are micron-sized and non-porous and less susceptible to fouling than porous \*\*\*agarose\*\*\* supports. In addn. their high ferromagnetic content means efficient \*\*\*magnetic\*\*\* \*\*\*sepn\*\*\* . and their small size and large surface are implies high \*\*\*protein\*\*\* binding capacities. Ferromagnetic-iminodiacetate-Cu<sup>2+</sup> supports were prep'd. by a series of coating and coupling steps. Batch binding studies to compare the capacity of novel ferromagnetic to conventional \*\*\*agarose\*\*\* metal affinity supports were performed with cytochrome c \*\*\*proteins\*\*\* .

L19 ANSWER 10 OF 13 MEDLINE on STN

DUPLICATE 4

ACCESSION NUMBER: 92061033 MEDLINE

DOCUMENT NUMBER: 92061033 PubMed ID: 1952930

TITLE: A magnetizable solid phase for enzyme extraction.

AUTHOR: Ennis M P; Wisdom G B

CORPORATE SOURCE: Division of Biochemistry, Queen's University of Belfast, Northern Ireland, UK.

SOURCE: APPLIED BIOCHEMISTRY AND BIOTECHNOLOGY, (1991 Aug) 30 (2) 155-64.

Journal code: 8208561. ISSN: 0273-2289.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 199112

ENTRY DATE: Entered STN: 19920124

Last Updated on STN: 19970203

Entered Medline: 19911202

AB A method for the convenient and reliable preparation of magnetizable \*\*\*agarose\*\*\* beads containing iron \*\*\*particles\*\*\* is described. The beads were treated with the triazine dye, Reactive Red 120, and the matrix was examined for the ability to extract \*\*\*proteins\*\*\* from crude preparations using lactate dehydrogenase from porcine muscle as a model. The recovery and specific activity values of enzyme obtained using this matrix and \*\*\*magnetic\*\*\* field \*\*\*separation\*\*\* were significantly greater than those for enzyme \*\*\*purified\*\*\* by centrifugation and conventional dye ligand chromatography.

L19 ANSWER 11 OF 13 MEDLINE on STN

DUPLICATE 5

ACCESSION NUMBER: 87080612 MEDLINE

DOCUMENT NUMBER: 87080612 PubMed ID: 3792466

TITLE: Purification of the bovine lens isozymes which reduce fructose diphosphate to sorbitol diphosphate.

AUTHOR: Srivastava S K; Ansari N H; Lerman S

CONTRACT NUMBER: EY 01677 (NEI)

SOURCE: EXPERIMENTAL EYE RESEARCH, (1986 Oct) 43 (4) 669-77.

Journal code: 070707. ISSN: 0014-4835.

PUB. COUNTRY: ENGLAND: United Kingdom

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 198702

ENTRY DATE: Entered STN: 19900302

Last Updated on STN: 19970203

Entered Medline: 19870211

AB Three isozymes of an enzyme which reduce fructose 1, 6-diphosphate (FDP) to sorbitol 1, 6-diphosphate (SDP) in the presence of NADH have been \*\*\*purified\*\*\* from bovine lens. The isozymes were fractionated by acid precipitation of the lens homogenate followed by DE-52 column chromatography. This step \*\*\*separated\*\*\* the FDP reducing activity into three major peaks, peak 1, peak 2, and peak 3. Each of these peaks were further \*\*\*purified\*\*\* by affinity chromatography using Reactive blue-2- \*\*\*agarose\*\*\*, Sephadex G-150 gel filtration, and DE-52 column chromatography. Polyacrylamide disc gel electrophoresis demonstrated the presence of one major isozyme and one minor isozyme in each of the three peaks. The Km values for FDP were 8.0, 5.7, and 4.7 mM for peaks 1, 2, and 3 respectively. The reaction product SDP was characterized by nuclear \*\*\*magnetic\*\*\* resonance spectroscopy. All the isozymes utilized pyruvate as substrate with the Km for peaks 1, 2, and 3 being 0.63, 0.20, and 0.09 mM respectively. These studies therefore indicate that FDP reducing activity and lactate dehydrogenase activity co- \*\*\*purify\*\*\* and may be expressed by the same enzyme \*\*\*protein\*\*\*.

L19 ANSWER 12 OF 13 MEDLINE on STN

DUPLICATE 6

ACCESSION NUMBER: 83202072 MEDLINE

DOCUMENT NUMBER: 83202072 PubMed ID: 6846811

TITLE: Novel effective immunoadsorbents based on agarose-polyaldehyde microsphere beads: synthesis and affinity chromatography.

AUTHOR: Margel S; Offarim M

SOURCE: ANALYTICAL BIOCHEMISTRY, (1983 Feb 1) 128 (2) 342-50.

Journal code: 0370535. ISSN: 0003-2697.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 198306

ENTRY DATE: Entered STN: 19900318

Last Updated on STN: 19900318

Entered Medline: 19830610

AB \*\*\*Agarose\*\*\* -polyaldehyde microsphere beads were produced by encapsulating polyacrolein microspheres or polyglutaraldehyde microspheres with \*\*\*agarose\*\*\*. \*\*\*Magnetic\*\*\* beads were formed by carrying out the encapsulation procedure in the presence of ferrofluidic \*\*\*particles\*\*\*. \*\*\*Proteins\*\*\* were bound covalently, at physiological pH, to the beads through their aldehyde groups to produce the Schiff base products. The conjugates, beads- \*\*\*proteins\*\*\*, were used successfully in affinity chromatography for specific \*\*\*purification\*\*\* of antibodies. Leaching of the \*\*\*proteins\*\*\* bound to the beads under physiological conditions and eluting conditions was not detected. The \*\*\*agarose\*\*\* -polyaldehyde microsphere beads are suggested as alternatives to the supports currently used in affinity chromatography.

L19 ANSWER 13 OF 13 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1982:558992 CAPLUS

DOCUMENT NUMBER: 97:158992

TITLE: Agarose polyacrolein microsphere beads. New effective immunoadsorbents

AUTHOR(S): Margel, Shlomo

CORPORATE SOURCE: Dep. Plast. Res., Weizmann Inst. Sci., Rehovot, Israel

SOURCE: FEBS Letters (1982), 145(2), 341-4

CODEN: FEBLAL; ISSN: 0014-5793

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polyacrolein microspheres, synthesized from acrolein by radiation-induced polymn. (Margel, S. et al., 1982), were encapsulated in \*\*\*agarose\*\*\* to form 50-150-.mu.m-diam. beads which were bound covalently at physiol. pH to e.g. \*\*\*proteins\*\*\*, antibodies, lectins, hormones, or drugs and then used as immunoadsorbents in affinity chromatog. A spacer of polylysine-glutaraldehyde, used to join the ligands to the beads, improved binding capacity. \*\*\*Magnetic\*\*\* beads were formed by doing the

encapsulation procedure in the presence of \*\*\*magnetic\*\*\* \*\*\*particles\*\*\* (Ferrofluid). The beads maintained their phys. and mech. properties after amino ligand coupling, and nonspecific adsorption of \*\*\*proteins\*\*\* to the beads does not occur. The beads were used for the \*\*\*isolation\*\*\* of antibodies by their adsorption to beads contg. appropriate immobilized antigens and elution with 0.2M glycine-HCl buffer at pH 2.4. After elution, the beads can be washed with phosphate-buffered saline, stored at 4.degree. in the presence of 0.05% NaN3, and used repeatedly over 6 mo without loss of antibody-binding capacity.

=> d his

(FILE 'HOME' ENTERED AT 14:00:28 ON 07 SEP 2003)

FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH, AGRICOLA' ENTERED AT 14:00:52 ON 07 SEP 2003

L1 7603565 S PROTEIN?  
L2 5192160 S ISOLAT? OR PURIF?  
L3 1186670 S L1 (P) L2  
L4 178305 S MAGNETIC (P) (SOLID OR PARTICLE OR SEPARAT?)  
L5 60340 S (HYDROPHILIC OR HYDROXYL) (P) (HYDROPHOBIC OR ALKYL OR ARYL)  
L6 162 S L4 (P) L5  
L7 1 S L3 (P) L6  
L8 11161 S MAGNETIC PARTICLE  
L9 9870 S MAGNETIC SEPARATION  
L10 1623 S (L8 OR L9) (P) L2  
L11 2 S L10 (P) L5  
L12 1 DUPLICATE REMOVE L11 (1 DUPLICATE REMOVED)  
L13 1 S L12 NOT L7  
L14 58 S L6 (P) SURFACE  
L15 0 S L14 (P) L3  
L16 103737 S AGAROSE  
L17 188 S L16 (P) L4  
L18 28 S L17 (P) L3  
L19 13 DUPLICATE REMOVE L18 (15 DUPLICATES REMOVED)

=> s mass spectrometry

L20 430688 MASS SPECTROMETRY

=> s automat?

L21 502309 AUTOMAT?

=> s (l7 or l13 or l19) and (l20 or l21)

L22 2 (L7 OR L13 OR L19) AND (L20 OR L21)

=> duplicate remove l22

DUPPLICATE PREFERENCE IS 'CAPLUS, BIOSIS'

KEEP DUPLICATES FROM MORE THAN ONE FILE? Y/(N):n

PROCESSING COMPLETED FOR L22

L23 2 DUPLICATE REMOVE L22 (0 DUPLICATES REMOVED)

=> d l23 1-2 ibib abs

L23 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2003 ACS on STN  
ACCESSION NUMBER: 2002:258168 CAPLUS  
DOCUMENT NUMBER: 138:21449  
TITLE: A purification system for his-tag proteins using magnetic separator  
AUTHOR(S): Nishiya, Yoshiaki; Kitabayashi, Masao; Ikeda, Katsunori  
CORPORATE SOURCE: Tsuruga Institute of Biotechnology, Toyobo Co., Ltd., Japan  
SOURCE: Jikken Igaku (2002), 20(3), 479-482  
CODEN: JIIGEF; ISSN: 0288-5514  
PUBLISHER: Yodosha  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: Japanese  
AB A review on \*\*\*automatic\*\*\* protein purifn. of recombinant His-tag proteins using magnetic nickel agarose bead in 96-well plates. Also given were the principle of the magnetic nickel agarose protein isolation, and isolation of Histidine hexamer-tag sarcosine oxidase manufd. with recombinant E. coli.

L23 ANSWER 2 OF 2 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN  
ACCESSION NUMBER: 2002:585377 BIOSIS

DOCUMENT NUMBER: PREV200200585377  
TITLE: Study of protein interactions using functionalized affinity membranes: A new approach for proteomics research.  
AUTHOR(S): Springer, A. L. (1); Gall, A. S. (1); Hughes, K. A. (1);  
Kaiser, R. J. (1); Li, G. (1); Lund, K. P. (1)  
CORPORATE SOURCE: (1) Prolinx, Inc, Bothell, WA USA  
SOURCE: Abstracts of the General Meeting of the American Society for Microbiology, (2002) Vol. 102, pp. 159.  
<http://www.asmusa.org/mtgsrc/generalmeeting.htm>. print.  
Meeting Info.: 102nd General Meeting of the American Society for Microbiology Salt Lake City, UT, USA May 19-23, 2002 American Society for Microbiology  
. ISSN: 1060-2011.

DOCUMENT TYPE: Conference  
LANGUAGE: English

AB Elucidating mechanisms of bacterial virulence requires understanding interactions of bacterial \*\*\*proteins\*\*\* with host \*\*\*proteins\*\*\* and with signaling molecules. To study such interactions using a systems approach, techniques are needed that are reliable, universal for any \*\*\*protein\*\*\*, and are amenable to \*\*\*automation\*\*\*. Prolinx(R), Inc. has developed a novel chemical affinity system for specific immobilization of \*\*\*proteins\*\*\* and other macromolecules. The system is based on the specific interaction of two small synthetic molecules, phenyl(di)boronic acid (P(D)BA) and salicylhydroxamic acid (SHA). The use of this technology to reproducibly immobilize biomolecules on a number of \*\*\*solid\*\*\* supports (such as microtiter plates, \*\*\*agarose\*\*\* or \*\*\*magnetic\*\*\* \*\*\*particles\*\*\*) has been demonstrated. In this study, the versatility of this technology on functionalized membranes is presented. *E. coli* beta-galactosidase was used as a model system to demonstrate feasibility of using SHA membranes as a surface for immobilization, \*\*\*solid\*\*\* phase assays and controlled release of macromolecules. Conjugation of active \*\*\*protein\*\*\* with PDBA was performed in solution independent of the immobilization step on the SHA membranes. The resulting PDBA-beta-galactosidase conjugate was immobilized directly without \*\*\*purification\*\*\*. SHA-membranes show high capacity for \*\*\*protein\*\*\* conjugation and enable excellent assay sensitivities. They are convenient to handle and store and can be used in multiple formats including those compatible with high-throughput analyses. The features demonstrated using this system make SHA-membranes a convenient platform for proteomics research.

=> d his

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L17 188 S L16 (P) L4  
L18 28 S L17 (P) L3  
L19 13 DUPLICATE REMOVE L18 (15 DUPLICATES REMOVED)  
L20 430688 S MASS SPECTROMETRY  
L21 502309 S AUTOMAT?  
L22 2 S (L7 OR L13 OR L19) AND (L20 OR L21)  
L23 2 DUPLICATE REMOVE L22 (0 DUPLICATES REMOVED)

=> log y

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